

The flowchart illustrates a waste management system with the following components and flows:

- SEPARATION OF WASTE AT SOURCE (24)**: Receives input 23. Outputs 25 and 26. Output 10 leads to DEINKING. Output 12 leads to MANUFACTURE OF PAPER OR BOARD. Output 1 leads to PRODUCTION OF ENERGY.
- DEINKING (3)**: Receives input 10. Outputs 11 and 6. Output 11 leads to MANUFACTURE OF PAPER OR BOARD. Output 6 leads to PRODUCTION OF ENERGY.
- PRODUCTION OF ENERGY (2)**: Receives inputs 1, 4, 6, and 50. Outputs 8 and 9b. Output 9 leads to MANUFACTURE OF PAPER OR BOARD. Output 22 leads to CONVERTING.
- MANUFACTURE OF PAPER OR BOARD (4)**: Receives inputs 10, 11, 12, 9, and 7. Outputs 20 and 19. Output 20 leads to TREATMENT OF WASTE WATER. Output 19 leads to CONVERTING.
- CONVERTING (19)**: Receives inputs 22 and 19. Outputs 21 and 20. Output 21 leads to TREATMENT OF WASTE WATER. Output 20 leads to TREATMENT OF WASTE WATER.
- TREATMENT OF WASTE WATER (14)**: Receives inputs 15, 17, 20, and 21. Outputs 16 and 18.

Additional flows and labels include: 29 (dashed line from 10 to 14), 14 (dashed line from 14 to 15), 15 (dashed line from 14 to 15), and 16 (output of 14).

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graph LR
    1((1)) --> 30[SCREENING]
    30 -- 31 --> 32[GASIFICATION]
    30 -- 33 --> 34[PULPER]
    10((10)) --> 34
    34 -- 35 --> 37[CLEANING SCREENING FRACTIONATING]
    34 -- 36 --> 41[SLUDGE PRESS]
    37 -- 40 --> 41
    37 -- 38 --> 39[PAPER MACHINE]
    41 -- 42 --> 32
    32 -- 43 --> 39
    32 -- 44 --> 45[POWER PLANT]
    45 -- 7 --> 39
    32 -- 9 --> 9
    45 -- 8 --> 8
    39 -- 20 --> 20
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The flowchart illustrates a process for producing paper from waste paper. The process begins with an input stream (1) entering a SCREENING unit (30). From SCREENING, a stream (31) goes to a GASIFICATION unit (32), and a stream (33) goes to a PULPER unit (34). A second input stream (10) also enters the PULPER. From the PULPER, a stream (35) goes to a CLEANING SCREENING FRACTIONATING unit (37), and a stream (36) goes to a SLUDGE PRESS unit (41). From the CLEANING SCREENING FRACTIONATING unit, a stream (40) goes to the SLUDGE PRESS, and a stream (38) goes to a PAPER MACHINE unit (39). From the SLUDGE PRESS, a stream (42) goes back to the GASIFICATION unit. From the GASIFICATION unit, a stream (43) goes to the PAPER MACHINE, a stream (44) goes to a POWER PLANT unit (45), and a stream (9) exits the system. From the POWER PLANT, a stream (7) goes to the PAPER MACHINE, and a stream (8) exits the system. Finally, the PAPER MACHINE produces a stream (20) as the final output.

FIG. 2

The flowchart illustrates a paper-making process. It begins with a 'SCREENING' unit (30) receiving input 1. The output of screening is 31, which goes to a 'GASIFICATION' unit (32). The 'GASIFICATION' unit produces output 9 and feeds into a 'POWER PLANT' (45). The 'POWER PLANT' produces output 8 and feeds into 'PAPER MACHINE 1' (39a) and 'PAPER MACHINE 2' (39b). 'PAPER MACHINE 1' produces output 20a, and 'PAPER MACHINE 2' produces output 20b. A 'PULPER' unit (34) receives inputs 10a and 10b. Its output 36 goes to a 'SLUDGE PRESS' (41). The 'SLUDGE PRESS' produces output 42, which goes to the 'GASIFICATION' unit, and output 43, which goes to 'PAPER MACHINE 1'. The 'PULPER' also feeds into a 'CLEANING SCREENING' unit (37). The 'CLEANING SCREENING' unit produces output 38a, which goes to a 'DEINKING BLEACHING' unit (48), and output 38b, which goes to a 'FRACTIONATING' unit (54). The 'DEINKING BLEACHING' unit produces output 47, which goes to the 'FRACTIONATING' unit, and output 48, which goes to 'PAPER MACHINE 1'. The 'FRACTIONATING' unit produces output 46, which goes to 'PAPER MACHINE 2', and output 49, which goes to the 'GASIFICATION' unit. The 'GASIFICATION' unit also feeds into 'PAPER MACHINE 1' and 'PAPER MACHINE 2'.

```
graph LR
    1((1)) --> 30[SCREENING]
    10((10)) --> 34[PULPER]
    30 -- 31 --> 32[GASIFICATION]
    30 -- 33 --> 34
    34 -- 35 --> 37[CLEANING SCREENING FRACTIONATING]
    34 -- 36 --> 41[SLUDGE PRESS]
    37 -- 38 --> 41
    37 -- 40 --> 41
    41 -- 42 --> 32
    41 -- 4 --> 47[DEINKING BLEACHING]
    32 -- 43 --> 52[PULP DRYING]
    32 -- 44 --> 45[POWER PLANT]
    45 -- 7 --> 52
    47 -- 51 --> 52
    52 -- 50 --> 50(( ))
    45 -- 8 --> 8(( ))
    32 -- 9 --> 9(( ))
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The flowchart illustrates a process for producing pulp from wood chips. The process begins with two input streams: stream 1 enters a SCREENING unit (30), and stream 10 enters a PULPER unit (34). The output of the SCREENING unit (31) is directed to a GASIFICATION unit (32). The SCREENING unit (30) also sends stream 33 to the PULPER unit (34). The PULPER unit (34) has two outputs: stream 35 goes to a CLEANING SCREENING FRACTIONATING unit (37), and stream 36 goes to a SLUDGE PRESS unit (41). The CLEANING SCREENING FRACTIONATING unit (37) has two outputs: stream 38 goes to the SLUDGE PRESS unit (41), and stream 40 goes to the SLUDGE PRESS unit (41). The SLUDGE PRESS unit (41) has two outputs: stream 42 goes to the GASIFICATION unit (32), and stream 4 goes to a DEINKING BLEACHING unit (47). The GASIFICATION unit (32) has three outputs: stream 43 goes to a PULP DRYING unit (52), stream 44 goes to a POWER PLANT unit (45), and stream 9 exits the system. The POWER PLANT unit (45) has two outputs: stream 7 goes to the PULP DRYING unit (52), and stream 8 exits the system. The DEINKING BLEACHING unit (47) has one output: stream 51 goes to the PULP DRYING unit (52). The PULP DRYING unit (52) has one output: stream 50 exits the system.

FIG. 4